

## NESTING BEHAVIOR OF A PURPLE-THROATED FRUIT-CROW

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ON BARRO COLORADO Island, Panama Canal Zone, June 28, 1951, Eugene Eisenmann called my attention to a Purple-throated Fruit-crow (*Querula purpurata*) carrying nesting material. Since this interesting cotinga has received only casual attention in the literature, I devoted many hours from June 28 to July 16 in observing it.

The Purple-throated Fruit-crow is a conspicuous member of the sub-oscine family Cotingidae in the humid lowland forests. Its range is from Costa Rica through northern and Amazonian South America. The species is not one of the brilliantly colored representatives of the group but its persistent and melodious call notes, interspersed by harsh caws, announce its presence. Carriker (1910. *Ann. Carnegie Mus.*, 6:662) says: "They have a peculiar soft, liquid, musical note, very difficult to describe, which sounds a great deal like the cooing of a dove, only much sweeter and clearer." All records that I have examined mention this species as seen either singly or in small, noisy parties.

The common name, Purple-throated Fruit-crow, seems apt because the bird somewhat resembles a small Crow (*Corvus brachyrhynchos*). It is about ten inches long, is wholly black except for a gray bill and, in the male, a glossy, magenta throat-patch. Its manner of "catching" fruit doubtless accounts for a part of its name.

Stone (1928. *Proc. Acad. Nat. Sci. Philadelphia*, 80:169) reported that the natives called the Fruit-crow, "mae de Tucano," mother of the Toucan, on the theory that they always associate with the latter. He further wrote, however, that de Schauensee found this alleged constant association not to be the case although toucans and Fruit-crows were found together in some instances.

Fr. Haverschmidt has written me that the Indians of Dutch Guiana claim that the Fruit-crow nests in hollow trees. The pair of birds I observed built a shallow nest of branches and vines in the dense foliage of a tree<sup>1</sup> at the edge of an extension to the clearing made for a new laboratory building. The nest was at the junction of steeply ascending branches about 75 feet from the ground. Although the nest was well concealed from below by the dense foliage, from one position I could see that it was a shallow platform or saucer through which light could be seen. When the nest was completed it extended only

<sup>1</sup> From a comparison of leaves of this tree with herbarium specimens, it appeared to be *Cordia alliodora*. This is a common species in the tropical forests, but since flowers and fruits were not present and the tree was taller than the 40-60 feet reported for the species, it seems best to identify it only tentatively.

slightly beyond the body of the incubating bird. It was possible to see the head or tail of the bird when she was on the nest. I think that the nest was as well hidden from above as from below.

It is of interest to note that the bird was nesting during the rainy season, which corresponds with a report of the Penards (1910. "De Vogels van Guyana," Marinius Nijhoff, The Hague, 2:174) that the species breeds during the small rainy season in Surinam. According to Haverschmidt this period is from about February 15 to about April 15.

I began close observation at 9 a.m. on June 28. The pair made six trips to the nest in the next three hours. On four of the trips the male carried vines and twigs. The female always accompanied her mate and once I saw her fly to a perch with a twig and try to remove its leaves by passing the stem through her bill. She gave up her efforts and flew to the nest to arrange the material that the male had brought. Although the male brought much of the nesting material, the female appeared to do all of the construction and shaping of the nest.

During their cooperative nest-building activities one bird frequently uttered two or more soft *coos* that were answered by two or more harsh *caws* from its mate. The only evidence of courting that I saw was the male puffing out his throat-patch so that it projected laterally beyond the sides of the neck like a hummingbird's gorget. Mr. Eisenmann saw a male, presumably the same individual, do this in front of a female in a nearby tree on June 21, a week before the nest was found.

On June 29, the second day of my observations, the Fruit-crows showed greater activity. I observed eleven trips with nesting material in a four-hour period in the morning. Mornings seemed to be the time for work. The Fruit-crows often made extended trips away from the nest in the afternoon, returning for short visits. With the increased building activity, both birds carried in longer vines and twigs and once I saw the male get a piece of vine entangled in the branches of the nesting tree. He dropped it and then tried, but failed, to recover it before it reached the ground. Once both birds carried a vine about three feet long for a short distance. The female first appeared with the piece which was giving her some difficulty. The male flew to the dangling end and picked it up in mid-air and flew with it to within a few feet of the nest. He then dropped the end he was carrying and the female carried it to the nest.

On June 30, I observed the nest from 7:10 a.m. until noon. The pair made six trips to the nest but carried nesting material on only three trips. Apparently the nest was about completed and the egg-laying period was approaching. The birds were more vocal than they had been for two days and

they stayed in the area. The female spent a longer time on the nest when she entered it and occupied herself by shaping the nesting material.

The next two days the Fruit-crows stayed in the area and visited the nest less frequently. On two trips on July 2, I saw the male bringing in small pieces of nesting material. There was little courting and I never saw the birds taking food, although they visited the cecropia trees each day and worked among the branches.

I made no visits to the nest again until July 9. There was no activity after I arrived at mid-morning and I feared that the nest had been broken up by toucans or other predators, but I was mistaken. I heard the birds in the vicinity uttering the soft cooing that bespoke a harmonious existence. The next four mornings the birds were seen early near the nest. The female went to the nest and remained for a short time. After that they left and stayed away for a long period. Doubtless these four days comprised the egg-laying period but I was unable to determine the number of eggs in the clutch or to see an egg. I have found no reference in the literature to Fruit-crow eggs.

There was a change in behavior on July 14. The female was seen on the nest for several periods of thirty to fifty minutes each. She was still on the nest at 5:00 p.m. which was the latest in a day that I had observed. My judgment is that incubation began that day because the next morning the bird was on at 6:30 a.m., when I arrived, and remained for most of that day. The male was perched near and made short flights away from the area but I never saw him go to the nest.

I left Barro Colorado Island on July 16, and was not able to follow the fate of the Fruit-crow's nest.

I believe there were several pairs nesting on the island during my stay, for on one occasion I heard two pairs calling at the same time from different directions. Other times I encountered small groups of five or six. One wonders whether these small bands were family groups.

Birds that frequented the nesting area were sometimes tolerated and sometimes driven away if they came close to the nest. I never saw the Fruit-crows show great ferocity. The bird that excited them most was the Chestnut-mandibled Toucan (*Ramphastos swainsonii*).

I am indebted to Dean Amadon, American Museum of Natural History, and to Eugene Eisenmann for searching the literature on egg collections of neotropical birds. Fr. Haverschmidt and Alexander Skutch both shared with me their knowledge of *Querula purpurata*.

KEUKA COLLEGE, KEUKA PARK, NEW YORK, NOVEMBER 21, 1951